

## LETTERS TO THE EDITOR.

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## Proposals of the Stockholm Fisheries Conference.

As one closely connected with scientific fisheries work on the North Sea, I cannot help taking a keen interest in the proposals that emanated from the Stockholm Congress, and in the criticisms that have appeared in NATURE on those proposals. These criticisms have been decidedly adverse, and readers of this journal who take an interest in fishery questions and research, but who have not been in a position to obtain the knowledge necessary to judge fairly the points in dispute, will naturally feel somewhat perplexed over the difficulties that have arisen. As the matter is of the greatest importance to Great Britain, with its large fishing industry, this perplexity is to be regretted, because it is very necessary that something like unanimity should obtain amongst those who have charge of affairs. This unanimity will come with greater clearness on the points at issue, and in order to aid towards this clearness I would ask your permission to allow me to continue the discussion.

The criticisms on the proposals of the Stockholm Congress may be resolved into two portions—direct criticisms of an adverse kind on the proposals in part or as a whole, and counter-proposals which it is considered the British Government should accept in preference.

Under the first heading come the criticisms of Prof. Herdman, and with them we may begin. Prof. Herdman considers that too much stress is laid on the hydrographical and meteorological work than on the biological. Two reasons may be given for this criticism. Firstly, at the present time, the biological investigations of the fisheries in the North Sea are in certain respects in a more advanced state than the hydrographical and meteorological. On such questions as those of migration, for example, many facts have been accumulated and theories founded thereon, but we are at a loss to follow up the investigations and test the theories because trustworthy statistics of the meteorological conditions—direction of the surface and deep water currents, temperatures in different places at different depths, fluctuations in salinity, and so on—are utterly lacking. Hence, biologists should really welcome this work, and not object to its seemingly greater prominence. This work, however, was not intended to hinder the further prosecution of strictly biological research, and here we come to the second reason for Prof. Herdman's criticism.

He does not seem to have fully appreciated the scheme proposed by the Congress under the heading of "The Biological Work." He says: "Surely what we need most at the present time in the interest of more exact fisheries knowledge, is the nearest possible approximation to a census of our seas—beginning with the territorial waters. Most fisheries disputes and differences of opinion are due to the absence of such exact knowledge. . . . The Stockholm report unfortunately says nothing to the point in regard to all this."

Now, the Stockholm report states clearly and definitely what is wanted, and how we are to obtain it. Under "Biological Work," in addition to other practical recommendations for the taking of this "census," under Parts I. and II., III.(a) and III.(b), run:—

"It is desirable to collect uniform statistics of the number, weight, and value of the fish landed, of the means of capture, and of the persons engaged in the industry; for example, as in the General Reports of the Scottish Fishery Board."

"It is desirable to collect material for the preparation of maps, showing the fishing grounds and the kinds of fishing there practised."

Under "A.—The Hydrographical Work," further recommendations are given under VI.—X. as to the taking of the "census." As these recommendations are quite clear, and fully cover the ground of all research into the total numbers of fish, the varying numbers at different times and places, as well as the total quantities of the different forms of fish-food and their fluctuations at different places and seasons, it seems impossible to ask for anything more. What more does Prof. Herdman see under the word "census"?

That Prof. Herdman has not fully weighed the scheme pro-

posed is again shown in his statement, "Part of the report is called a programme of work, but it contains no definite programme of biological work." It is needless to discuss this until we have Prof. Herdman's conception of a "definite programme" before us, and then we shall be able to compare the two. If Prof. Herdman can show a better, more definite and workable programme, it is only right that he should do so after passing such criticism on the other.

"In my opinion," says Prof. Herdman, "what we want is not conferences, or committees, or a central bureau, so much as boats and men, and work at sea." This catches the eye at once as being eminently practical, but surely Prof. Herdman does not mean that the Congress did not contemplate the use of "boats and men, and work at sea"? But he fears evidently that an "opportunity" is being lost because the Congress has advocated the formation of the central organising body before starting to actual work. But where so much has to be done, so many different studies to be organised, so many different arrangements and experiments to be made, we should rather approve of the methodical and calculating arrangements of the Congress, even though for the moment progress is *seemingly* slow, just as we approved of the slow but certain progress of General Kitchener to Khartoum.

As Dr. Murray has ranged himself with Prof. Herdman in his criticisms, and as his proposals can be discussed under those of Mr. Allen, I trust he will not think it from disrespect that I pass on now to the points raised by Mr. Allen. These have been thought out with great care, and one cannot but acknowledge his fair and generous method of treating the subject. The general plan of the investigations is approved of, and only on minor points can there be differences of opinion. The matter of the areas of investigations will assuredly come under reconsideration, as he suggests. The only question—and the chief one—that will repay discussion, is that of the "central bureau."

Mr. Allen recommends that the British Government, in order to give effect to the proposals of the Congress, should first of all co-ordinate the work of the different stations in the British Isles. (Would this not harm their "originality"?). When this is done, the "essential requirements" are a sufficient number of capable naturalists and sea-going steamships efficiently equipped. The experts of the different countries would meet once a year in order to co-ordinate the investigations and insure uniformity of method. This scheme is contrasted with that of the Congress, and it is maintained that the establishment of a "central bureau" is too elaborate and expensive.

Now, if Mr. Allen had restricted himself to asking further particulars regarding the central "laboratory," one would have taken no exception to his remarks; but since he objects to what seems very necessary—namely, a central body to organise and keep the different researches and departments in actual touch with one another, to do the secretary work and look after the printing of reports, &c.—one must turn and ask what he intends to put in its place. Mr. Allen surely does not think that a meeting of experts once a year is equally adequate?

Until Mr. Allen unfolds this part of his scheme a little further, we may regard certain other aspects of it. No one will deny that the co-operation of the various marine stations in England for definite fisheries work would be of immense value; but why has this not been considered and done before? Again, if this scheme were effective and less expensive than that proposed by the Congress, would the representatives of the other countries not have taken it into consideration? These representatives have had much greater experience of fishery work than Mr. Allen has had, and a much better notion therefore of what is needed, and it is unlikely that they would ask their Governments to pursue a course which is more expensive than another equally effective. This is said without intending any disrespect for Mr. Allen; it is merely drawing a comparison between two experiences, and the comparison tells against Mr. Allen.

Again, is Mr. Allen's scheme workable and adequate to the work that is wanted? It should be remembered that Great Britain has not been asked to co-ordinate its various small marine stations, however desirable this may be. It has simply been asked to carry on a certain programme of work for a period of five years at least. The course of events, let us imagine, will be somewhat as follows:—The Scottish Fishery Board will be asked by Government to carry on a certain amount of routine hydrographical work, with the instruments

suggested and the methods proposed, at certain periods of the year over the area prescribed, also biological plankton investigations similarly. What extra expense this will be to the Board it is not for me to say; but with its staff and knowledge of the methods to be employed, the experience and equipment it has at its command, this will not be anything very great. There is no necessity here for co-ordinating, first of all, the work that might be done at St. Andrews, Millport, and Granton. These places will carry on their own work in their own way, because biological research must always be acceptable. But, if the Fishery Board should desire any special work to be done at those stations, it has the staff, the knowledge of ways and means, and the funds at its disposal, and the work will be done.

England, unfortunately, is not prepared to the same extent. It has no central body whose knowledge and experience of fishery work in this and other countries could command the co-operation of the different stations. It is doubtful also whether the biologists in England have worked on the methods suggested by the Congress. If so, they have not yet published any results. They are so far removed, further, from the centre for work, viz., the North Sea, that their work is formed on a different plan; they have not the same aims, and they do not look at fishery problems as the biologists along the coasts of the North Sea do. And it is a curious comment on this condition of England, that on its East Coast—from which as much fishing is carried on, and where the value of the fisheries is as great, as in all those of the other countries round the North Sea combined—it is curious that there is no station there which can adequately take up the work proposed, and that a great part of this coast is ascribed to Holland as within its area of investigation. All this is said without intending any disrespect whatsoever to Mr. Allen, but it comes to one's mind in reading over his proposals.

The co-operation of the marine stations in England would not remedy this. "A central bureau" for England alone would require to be established, with experienced trained men at its head. This would take much time and money, and when Great Britain has been offered a "central bureau" of more power and value at a less cost, there can be little doubt for which the Government will decide.

Without intruding further upon your space by entering into the advantages of the organisation proposed by the Congress, and of co-operation with foreign countries, let me, in conclusion, express my earnest desire to do justice to both sides. If Prof. Herdman can prescribe a better programme of work, if Mr. Allen can show a better organisation, then let us have them by all means. The British Government will then have two definite schemes to consider, and if it finds it cannot decide between the two, then let us have two definite rival organisations, each doing its best with the means at its disposal to add to the knowledge and power of our country. Here we should be at one, and rivalry will not be tinged with envy or bitterness, but stimulate to greater exertions, and breed that respect and community of sentiment which springs from a common ideal and hard work well done.

H. M. KYLE.

Naples, December 8.

### Supposed Daylight Leonids.

THE interesting details referred to by Dr. W. J. S. Lockyer (*NATURE*, December 7) of a shower of Leonids having been witnessed by Miss Jeans and others at Swindon, and by Mr. E. Shaw at Aveley, in Essex, on the afternoon of November 15 last are corroborated by several other descriptions of a similar nature which recently appeared in the newspapers. One of these referring to a later date, was published in the *Liverpool Echo* of November 21, and runs as follows:—

"SIR,—Not having seen any account in the papers concerning the arrival of the meteoric showers, I beg to state that I saw them on Thursday afternoon, the 16th inst. I first noticed them at 12.15; they were shooting in all directions and kept on until about 4 o'clock. Then on Friday, the 17th, I again saw them at the same time. I called the attention of several people, with the result that they could also see them. Owing to the bright sky, one had to stare for a few seconds before perceiving the stars, as they were very dazzling to the eyes.

"Yours, &c.,

"Liverpool, November 20."

"MIMA ARDEN.

I need not quote any further descriptions, for there is not the slightest doubt that the objects were illusory and had nothing

whatever to do with the November meteors. On November 15 the radiant of the Leonids sets at 2.30 p.m., so that the observations of Mr. E. Shaw (quoted by Dr. Lockyer), Miss Arden and some others are entirely put out of court, for we cannot have a shower of Leonids with the radiant below the horizon.

The objects seen must have been purely imaginary, and they may be easily produced by bending the neck and gazing intently for a few minutes at a bright sky. I have observed many of these spectral meteor showers on occasions when I have been looking for Venus or some other object in bright daylight.

It is astonishing that if one calls the attention of people to imaginary phenomena of this kind and asks them to look, they will, in ninety-nine cases out of one hundred, see the same thing and encourage similarly mistaken ideas! Yet if we observe an unequivocal object, it is often very difficult to make others perceive it and comprehend its character and the nature of the observation. Fictitious objects are in point of fact often seen more readily and apparently under more convincing aspects than real ones, but this applies usually to inexperienced observers.

In addition to the two reports of the recent shower of Andromedids mentioned in the last number of *NATURE*, there is a third from Austria (*Daily Chronicle*, November 25). It appears that the astronomers of the Vienna observatory, watching the sky "from the beginning of evening up to moonrise, saw sixty-seven shooting stars, mostly from Andromeda. A magnificent fireball was also observed shining in the constellation. Twelve photographs were taken."

W. F. DENNING.

Bristol, December 8.

### Birds Capturing Butterflies.

REFERRING to the letters on this subject in your papers of September 28 and November 16, I can certify to the fact of robins chasing and catching large white butterflies on the wing and swallowing them whole. In June we had ten robins coming freely to the hand for food, and thus had frequent opportunities of observing them daily. My gardener and his son have witnessed the same habit of the robins.

HOWARD FOX.

Rosehill, Falmouth, December 7.

### VALVE MOTIONS OF ENGINES.

ENGINEERS want a diagram which for any position of the main crank of a steam engine (the angle  $\theta$  which it makes with the inner dead point being given) shows at once, with sufficient accuracy for practical purposes, the position of the piston in its stroke, and the distance of the valve from its mid position. This is a mathematical problem. Men who are cunning in geometrical constructions ought to help the engineers; but hitherto they have not done so. In the hope of enlisting their services I venture to put before the readers of *NATURE* the only easy construction with which I am acquainted. It has never before been published, except to his students, by the inventor, Mr. J. Harrison, of the Royal College of Science. Until I became acquainted with this method, I used a very laborious method of working, which necessitated the drawing of sine curves of different periods as described in my book on "Steam."

It will save trouble in expressing my meaning if I assume a uniform rotation of the crank. If we assume that the motions of piston and valve are simple-harmonic, a construction is very easy. When the valve is worked directly by an eccentric its motion is very nearly S.H., and in this case a construction, taking account of the shortness of the connecting rod, is easy.

But, as I have been trying to impress upon students for many years, when a valve is worked by any ordinary link motion or radial valve gear, the motion is not simple-harmonic; there is a small octave or kick of twice the fundamental frequency, and if this is taken into account, as well as the fundamental S.H. motion, it will be found that higher harmonics are of very little importance. Now in radial valve gears it is not at all